

## **REMARKS**

Claims 1-16 are pending in this application. On June 14, 2005, the Examiner rejected claims 1-16. In response, Applicants amend herein claims 1, 10, and 12, cancel claims 7 and 9, and add new claim 17. Applicants have also amended the specification to correct a minor typographical error and to provide updates, and submit that no new matter is being added by the amendments. Applicants respectfully traverse the rejection and request reconsideration based on the following remarks.

### **Claim Objections**

The Examiner objects to claim 8 because there was no antecedent basis for an angle in claim 8 or in the indicated base claim 1. The Examiner further comments that "[i]t is apparent to the examiner that claim 8 should either depend from claim 7 instead of the indicated dependency from claim 1." Office Action, page 2. Applicants amend claim 1 to include the features of claim 7 and therefore overcome this objection.

### **Claim Rejections under 35 U.S.C. § 102**

In order to establish a proper 102 rejection, each element of the claim must be disclosed expressly or inherently within the prior art. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

### Claim 1

Applicants respectfully traverse the rejection of claim 1 under 35 U.S.C. 102(b) as being anticipated by Cohen et al. (U.S. Patent No. 5,631,991; hereafter “Cohen”). Applicants amend claim 1 to include the limitations of claims 7 and 9.

Claim 1 includes “wherein the multi-mode fiber stub includes an exit surface, the exit surface being polished at an angle with respect to an optical axis of the multi-mode fiber stub, wherein the optical detector is offset from the optical axis of the multi-mode optical fiber,” (emphasis added). The Office Action stated on page 8, with respect to claim 9, that Cohen does not teach the optical detector chip being offset from the optical axis of the multimode optical fiber. Therefore, Applicants’ claim 1 is patentable over Cohen by itself or Cohen in view of Eide and Deng.

Moreover, claims 2-6 and 8 depend from claim 1 and require all of the limitations of claim 1. Therefore, claims 2-6 and 8 are also patentable over Cohen by itself or Cohen in view of Eide and Deng.

### Claims 10-13 and 16

The Examiner rejected claims 10-13 and 16 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,031,984 (“Eide”).

Claim 10 includes “coupling a light beam from a single-mode optical fiber into a multi-mode fiber stub via a sleeve, wherein the sleeve aligns the single-mode optical fiber and the multi-mode fiber stub,” (emphasis added) while claim 12 includes “a sleeve for coupling an optical fiber and a multi-mode fiber stub; wherein the sleeve aligns the optical fiber and the

multi-mode fiber stub,” (emphasis added). Eide discloses a link fiber 12 and two branch fibers 14 and 16 in FIGs. 3, 7, and 8. Eide further discloses aligning the fibers by:

The fibers of the coupler are aligned and mounted to the glass plate using a technique similar to an optical fiber splicing technique developed by a French company known as Alliance Technique Industrielle. The technique utilizes a silicone elastomeric mold having a surface in which precision grooves are formed corresponding to the desired positions of the optical fibers. The optical fibers are placed within the grooves on the mold and are connected to optical sources and detectors. The glass substrate 10 with the ultraviolet-curable adhesive 20 disposed on a surface is positioned over the mold to thereby sandwich the optical fibers in place. The optical fibers are then physically adjusted while monitoring the light detectors to determine when maximum light coupling is achieved. The physical adjustment of the fibers is done in two ways: rotation of the fibers for end surface alignment, and axial movement to minimize fiber spacing at the junction. When the desired alignment is attained, the adhesive is subjected to ultraviolet light through the glass substrate and is thereby cured. After the adhesive is properly cured, the mold is removed and the coupler has been formed on the glass substrate 10.

Eide discloses using a mold having grooves to align the fibers. However, the claimed invention requires a sleeve to align an optical fiber and a multi-mode optical fiber. As shown in FIGS. 1 and 5A of the present invention, the multi-mode optical fiber and the optical fiber are inserted inside of the sleeve. The sleeve allows the cores of the fiber to properly align to reduce the amount of connector and splice loss. Thus, based on the cited specification above, Eide fails to expressly or inherently disclose either “coupling a light beam from a single-mode optical fiber into a multi-mode fiber stub via a sleeve, wherein the sleeve aligns the single-mode optical fiber and the multi-mode fiber stub,” or “a sleeve for coupling an optical fiber and a multi-mode fiber stub; wherein the sleeve aligns the optical fiber and the multi-mode fiber stub.” Therefore, Applicants’ claims 10 and 12 are patentable over Eide.

Claims 11 and 13 depend on claims 10 and 12, respectively, and are patentable for the same reasons as claims 10 and 12. Therefore, claims 10-13 are allowable over Eide.

Claim 16 is cancelled so the rejection regarding claim 16 is moot.

### **Claim Rejections under 35 U.S.C. § 103**

MPEP § 2142 requires to establish a prima facie case of obviousness that (1) the prior art reference must teach or suggest all claimed elements, (2) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference, and (3) there must be a reasonable expectation of success. At least one of these requirements was not established with respect to Cohen in view of Deng and Richard.

#### **Claim 2**

The Examiner rejected claim 2 under 5 U.S.C. 103(a) as being unpatentable over Cohen et al. in view of U.S. Patent No. 6,851,870 ("Deng").

Deng does not overcome the deficiencies of Cohen regarding claim 1. Claim 2 is dependent upon claim 1 and is patentable for the same reasons as claim 1. Therefore, claim 2 is allowable over Cohen in view of Deng.

#### **Claim 3**

The Examiner rejected claim 3 under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. in view Deng and Eide.

Eide does not overcome the deficiencies of Cohen in view of Deng regarding claim 1. Claim 3 is indirectly dependent upon claim 1 and is patentable for the same reasons as claim 1. Therefore, claim 2 is allowable over Cohen in view of Deng and Eide.

#### Claims 4-6

The Examiner rejected claims 4-6 under 35 U.S.C. 103(a) as being unpatentable over Cohen in view of U.S. Published Application No. 2004-0159776 ("Richard").

Richard does not overcome the deficiencies of Cohen regarding claim 1. Claims 4-6 are dependent upon claim 1 and are patentable for the same reasons as claim 1. Therefore, claims 4-6 are allowable over Cohen in view of Richard.

#### Claim 7

The Examiner rejected claim 7 under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. in view of Eide et al. In response, Applicants cancel claim 7 and incorporate the elements of claim 7 into claim 1.

Claim 1 includes "wherein the multi-mode fiber stub includes an exit surface, the exit surface being polished at an angle with respect to an optical axis of the multi-mode fiber stub, wherein the optical detector is offset from the optical axis of the multi-mode optical fiber." (emphasis added). The Office Action stated on page 8, with respect to claim 9, that Cohen and Eide do not teach the optical detector chip being offset from the optical axis of the multimode optical fiber.

#### Claim 8

The Examiner rejected claim 8 under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. in view of Eide et al. as applied to claims 7, and further in view of U.S. Patent No. 5,737,467 ("Kato et al.").

Kato does not overcome the deficiencies of Cohen and Eide regarding claim 1. Claim 8 is dependent upon claim 1 and is patentable for the same reasons as claim 1. Therefore, claim 8 is allowable over Cohen in view of Eide and Kato.

#### Claim 9

The Examiner rejected claim 9 under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. in view of Eide et al. as applied to claims 7, and further in view of U.S. Patent No. 6,851,870 ("Deng et al."). In response, Applicants cancel claim 9 and amend claim 1 to incorporate the features of claim 7 and claim 9.

Amended claim 1 includes "wherein the multi-mode fiber stub includes an exit surface, the exit surface being polished at an angle with respect to an optical axis of the multi-mode fiber stub, wherein the optical detector is offset from the optical axis of the multi-mode optical fiber," (emphasis added). The Office Action stated on page 8, with respect to claim 9, that Cohen and Eide do not teach the optical detector chip being offset from the optical axis of the multimode optical fiber.

The Office Action further stated that Deng et al. (U.S. Patent No. 6,851,870; hereinafter "Deng") provides an optical detector chip (30) offset (Figure 1) from the optical axis of fiber (20). However, Deng provides within the Field of the Invention:

The present invention relates to a method for measuring and assembling transceiver optical sub-assembly (OSA), in which an image sensor is aligned with a fiber aperture on a housing of the optical sub-assembly and set to focus on a fiber coupling plane in the housing, so as to detect a light spot presented on the fiber coupling plane by a laser beam emitted from a functional element through the lens, or an image of a light-emitting area or a receiving area of the functional element presented on the fiber coupling plane via the lens. By adjusting the size and position of the light spot or the image on the fiber coupling plane, the functional element is precisely aligned and then fixed in the housing. With the method, measuring procedures for the OSA are simplified and the transmission

bandwidth for the optical fiber is optimized, enabling an increased rate of good yield of the finished OSA. Deng 1:7-23 (emphasis added).

More specifically, Deng discloses that the image sensor 31 is aligned with the fiber aperture A3 that holds an optical fiber 20 in place so the image sensor 31 can detect a light spot presented on the fiber coupling plane by a laser beam emitted from an optical fiber. Thus, Deng provides that if the optical fiber 20 is not aligned with the image sensor 31, the image sensor cannot receive the beam from the optical fiber. In essence, if the image sensor 31 is not aligned with the optical fiber 20, Deng's invention would not function properly. Thus, based on the specification cited above, Deng fails to expressly or inherently disclose "wherein the optical detector is offset from the optical axis of the multi-mode optical fiber." Therefore, Applicants' claim 1 is patentable over Cohen by itself or Cohen in view of Eide and Deng.

Moreover, claims 2-6 and 8 depend from claim 1 and require all of the limitations of claim 1. Therefore, claims 2-6 and 8 are also patentable over Cohen by itself or Cohen in view of Eide and Deng.

#### Claim 14

The Examiner rejected claim 14 under 35 U.S.C. 103(a) as being unpatentable over Cohen in view of Deng and Richard.

To establish a prima facie case of obviousness, Cohen in view of Deng and Richard must teach or suggest all claimed elements. However, the combination of Cohen in view of Deng and Richard does not teach "press fitting a multi-mode fiber stub into a stub holder; positioning a split sleeve over a portion of the multi-mode fiber stub... press fitting the stub holder into a receptacle;" as is recited in claim 14.

With respect to claim 14, the Examiner asserts that Cohen in view of Deng discloses “press fitting a multimode fiber stub (Figure 1, element 7) into a stub holder (housing 2), positioning a split sleeve (ferrule 6) over a portion of the multimode fiber stub...Deng teaches...the fiber is mounted in a holder (Figure 1, element 21) press fitted into receptacle (Figure , element A3). It would have been obvious to one of ordinary skill in the art at the time of the invention to press fit the stub holder of Cohen into a receptacle as taught by Deng. The motivation would have been to allow the connection of the fiber stub to external electrical connections.” Office Action on pages 8 and 9.

However, the prior art of Cohen and Deng appear to be inconsistent with the statements made within the Office Action. Cohen discloses a subassembly 1 having a ferrule bore 5 that accepts a ferrule surrounding an optical fiber 7 having a core 8. Deng discloses a subassembly having a first aperture A3 that accepts a fiber 20 having a fiber coupling plane 21. However, Cohen’s ferrule bore 5 and Deng’s first aperture A3 are technically the same element. Both of these elements accept the fiber optic so that the fiber optic can pass its light beam to an image sensor 31(or optoelectric converter 4). Since these elements are the same, Cohen and Deng cannot teach the combination of the stub holder and receptacle. If the Examiner disagrees, the Examiner must consider how and why one of ordinary skill in the art would press fit Cohen’s ferrule bore (stub holder) into Deng’s first aperture A3 (receptacle). There is absolutely no motivation to do so. In addition, Richard fails to overcome these deficiencies. Thus, the combination of Cohen in view of Deng and Richard fail to disclose “press fitting a multi-mode fiber stub into a stub holder; positioning a split sleeve over a portion of the multi-mode fiber stub; press fitting the stub holder into a receptacle.” Therefore, Applicants’ claim 14 is patentable over Cohen in view of Deng and Richard.



### Claim 15

The Examiner rejected claim 15 under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. in view of Deng et al. and Richard et al. as applied to claim 14, and further in view of Eide et al.

Eide does not overcome the deficiencies of Cohen in view of Deng and Richard regarding claim 14. Claim 15 is dependent upon claim 14 and is patentable for the same reasons as claim 14. Therefore, claim 15 is allowable over Cohen in view of Deng and Richard.

### New Claim

New claim 17 has been added. New claim 17 is the combination of original claims 1-3. As shown above with respect to claim 14, Cohen in view of Deng and Eide fail to include the combination of a stub holder, sleeve, and receptacle. Therefore, claim 17 is patentable over the prior art of record.

In view of the foregoing amendments and remarks, Applicants respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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